

## **REMARKS**

Favorable reconsideration is respectfully requested.

The claims are 34-49. Claims 1-33 are cancelled. New claims 34-49 are added.

The random bipolymer features of new claim 34 are supported in previous claims 18 and 24, and in the specification at page 11, line 29; page 5, lines 33-37; and page 4, lines 20-21.

The stretching limitation of new claim 34 is supported at page 9, lines 3-5, of the specification.

New claims 35-45 are supported in previous claims 19-29.

New claim 46 is supported in previous claim 30, previous claim 24, and in the specification at page 9, lines 3-5; page 11, line 29; page 5, lines 33-37; and page 4, lines 20-21.

New claims 47-49 are supported in previous claims 31-33.

No new matter is added.

## **Specification**

The Examiner objects to the specification because the Abstract of the Disclosure was not filed on a separate page, there is no Brief Description of the Drawings, and because the first line of the specification should be amended to reference the parent applications.

This specification is currently amended to address each of the Examiner's objections.

## **Claim Rejections - 35 U.S.C. 112**

Claim 24 is rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner asserts that embodiments d, f, and g of claim 24 are not supported by the specification.

Applicants respectfully traverse this rejection.

Embodiments d, f, and g of previous claim 24 (and which have now been incorporated into new claims 34 and 40) are fully described in original claim 7 of the specification as filed.

Claims 18-33 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Applicants respectfully traverse this rejection.

The specification makes clear that in the DMTA (dynamic mechanical thermal analysis) data measurements were made at a temperature of 25°C and at a frequency of 3Hz (see lines 4-5 of page 5 of the specification). The Examiner observes that the response of materials such as polyethylene and polypropylene (which are visco elastic materials) to deformation will depend on the rate (or frequency) of the deformation. In a DMTA test the applied strain is an oscillating strain, i.e., the strain is sinusoidal. The size of the strain is represented by the sine-wave height (i.e., wave amplitude). The time-dependent part of the strain is defined by the frequency, which is measured in  $\text{Hz}(\text{s}^{-1})$ . For a DMTA test, the (time-dependent) rate of strain is simply the amplitude of the strain multiplied by the frequency. For example, 0.1% strain multiplied by 3Hz would have a strain rate of  $0.3\% \text{ s}^{-1}$ . In other words, by quoting a frequency, the application is defining the time-dependent strain. The Examiner is also requested to note that the data concerning frequency and temperature is similar to the corresponding data provided in US 6,541,123 to Taniguchi cited by the Examiner in the Office Action.

### **Claim Rejections 35 U.S.C. 102/103**

Claims 18, 19 and 21-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by Taniguchi (WO 99/62987) (U.S. 6,541,123 is used as the English equivalent).

Claims 20-37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Taniguchi.

Applicants' respectfully traverse each of these rejections.

#### **1. *The Present Invention***

Although the composition of the film, in particular, the incorporation of a random bipolymeric component therein is important in arriving at a film with the necessary properties concerning  $E''$  (and, as far as the first dependent claim of the application is concerned,  $E'$ ), the composition of the film is not the only significant feature in this respect. The draw ratios of biaxial stretching are also found to be important. Applicants have found that suitable properties

with regard to  $E'$  and  $E''$  are found to be attained with draw ratios of between 3 and 10 in both MD and TD directions. The main claim has been amended to acknowledge this feature, as described at lines 3-5 of page 9 of the specification.

It may also be desirable to provide some explanation concerning the implication of  $E'$  and  $E''$  in the suitability of the films of the invention with regard to their conformability behavior.

Briefly,  $E'$  refers to the storage modulus of the film (i.e., the energy required to stress the film and introduce curvature therein). If the film is applied as a label on a squeezable container then, as the container is squeezed, it is necessary to introduce curvature into the label. Otherwise, the label will not conform to the new shape of the container and is likely to become removed or damaged as a result.

In order to introduce curvature into the label (when the squeezable container is squeezed) it is necessary to stress the label, and the amount of stress required to introduce satisfactory curvature therein is determined by  $E'$ . If  $E'$  (of the label) is too high then it is necessary to put so much stress into the label to introduce curvature that there is a risk of the label shearing off. On the other hand, if  $E'$  is too low then the label will be too floppy, with attendant difficulties in applying the label in the first place, and in maintaining a satisfactory label appearance on the squeezable container.

Whereas  $E'$  is determinative of the characteristics of the label when squeezed,  $E''$  is concerned with the properties of the label when the squeezable container ceases to be squeezed; and thereby returns to its original configuration. Under these circumstances, it is necessary for the label to "bounce back" in conformity with the squeezable article; otherwise the label will crease. If  $E''$  is too high then the label does not bounce back quickly enough, and a rippling effect will then be observed in the label in its resumed configuration.

Accordingly,  $E'$  and  $E''$  will be recognized as important characteristics of the biaxially oriented polyolefinic films of the invention, in particular as regards the suitability of these films for label application in a squeezable label type environment, and in certain graphic arts applications.

The present inventors have discovered that it is by the incorporation of a random bipolymer into the core layer that the essential properties concerning E' and E'' can satisfactorily be obtained.

2. *Distinctions between the Present Invention and the Prior Art*

It should be noted that the Taniguchi films have a much lower loss modulus (E'') (and indeed storage modulus E') compared to the films of the present invention.

This is not surprising because the purpose of the Taniguchi invention is to provide a stretch film (see lines 6-8 of column 1 of Taniguchi). In contrast, the films of the present invention are designed for conformability rather than stretch.

The only example of Taniguchi which relates to a film having a random PP/PE component, and which provides data concerning E' and E'', is example 7. The example 7 film quotes E' at 20°C as 35MPa, and (using the conversion from the loss tangent) E'' as approximately 12MPa.

It will be noted that the storage of moduli in general, and E'' in particular disclosed in Taniguchi are considerably below the claimed range of the present invention. Again, this is unsurprising because the purpose of the films of the present invention is to provide a conformable film, whereas in Taniguchi the object is to provide a film with a high stretch.

The Examiner observes that the DMTA conditions set out in Taniguchi are slightly different from those of the present invention. In particular, Taniguchi uses a temperature of 20°C and frequency of 10Hz. In contrast, the DMTA test in the present invention is conducted at 25°C and 3Hz. While it is not possible in view of these differences to make an absolutely direct comparison, what can be said is that in general terms increasing the temperature of the DMTA test will tend to reduce the obtained modulus value. This is borne out by the relative moduli quoted at 0°C and 20°C respectively in Taniguchi.

Therefore, if the Taniguchi films were tested at 25°C, it would be expected by one of ordinary skill in the art that the obtained number for E' and E'' would fall further (i.e., below approximately 12 as far as E'' is concerned).

Furthermore, conducting the DMTA test at a lower frequency will also tend to lower the obtained result as far as moduli are concerned. Therefore, if the Taniguchi films were tested at 3Hz, it would be expected that the obtained result would once again fall.

Therefore, it is approximately possible to compare the numbers set out in Taniguchi with the claimed ranges of the present invention, and the inevitable conclusion is that the Taniguchi films have much lower storage and loss moduli than those of the present invention and, as far as  $E''$  is concerned, falling well outside the claimed range in claim 34. The same applies to  $E'$  in claim 35.

Taniguchi therefore does not disclose the films of the present invention, and does not suggest them. In fact, the films of the present invention are taught away from in Taniguchi, which is concerned with providing high stretch films with particularly low storage moduli. In contrast, the films of the present invention are intended to provide suitable substrates for conformable label applications (and in certain graphic arts applications for example) and the key to the invention is balancing the physical properties of the films by stretching the film from between 3 to 10 times its original dimensions in both the machine and transverse directions, while at the same time maintaining the storage moduli within the claimed ranges, which allow for conformability in the end use application.

Accordingly, the present claims are not disclosed or suggested by Taniguchi, and this rejection should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

Peter Mills et al.

By: J. Mark Konieczny  
J. Mark Konieczny  
Registration No. 47,715  
Attorney for Applicants

MJ/JMK/vah  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
February 9, 2009